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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/520,004
Filing Date: March 06, 2000
Appellant(s): MAYE ET AL.

Dwight D. Kim
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 03/09/2011 appealing from the Office action mailed 11/09/2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application: 2-18, 20 and 21.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

US 5082975	Todd et al	01-1992
US 4,002,863	Todd e al	01-1997

Alcohol Distiller's Handbook, 1980, pp.56-57

Richards et al., Oxygen Consumption and Carbon Dioxide Production during the growth of Yeast, Plant Physiol., 1932 January, 7(1), pp.139-143

Righelato et al., Anaerobic Fermentation: Alcohol Production [and Discussion]., Philosophical Transactions of the Royal Society of London, Series B, Biological Sciences, Vol. 290, No. 1040, New Horizons in Industrial Microbiology, (Aug. 11, 1980), pp.303-312.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

i) Claims 2-21 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 41 and 43-47of copending Application No. 11/473,533.

ii) Claims 2-21 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 34-40 of copending Application No. 10/361976.

These are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2-6, 8-11, 14-15 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Todd, Jr. et al. (US 5,082,975) in view of ALCOHOL DISTILLERS HANDBOOK, Righelato et al. (Anaerobic Fermentation: Alcohol Production [and Discussion]) and Richards et al. (OXYGEN CONSUMPTION AND CARBON DIOXIDE PRODUCTION DURING THE GROWTH OF YEAST).

Todd, Jr. et al. disclose synthesis of hydrogenated purified beta acid (hexahydrolupulon) and its use as a selective inhibitor of cell growth (Col. 2 lines 33-41, Col. 3 lines 7-20). In regard to claim 2,Todd, Jr. et al. disclose "[a] process for producing hexahydrolupulone which comprises of the steps of contacting beta acids in an alkaline solution with a metal oxide, hydroxide, or salt" (Col.2 lines 33-36). In regard to claims 2 and 14, Todd, Jr. et al. disclose "the addition of hexahydrolupulone to a yeast culture to inhibit the growth of Lactobacillus therein" (Col. 3 lines 7-8). In regard to claims 2 and 14, Todd, Jr. et al. disclose "the inhibition of a Lactobacillus microorganism in the presence of yeast without inhibiting growth of the yeast by the application of a Lactobacillus-inhibiting amount of hexahydrolupulone thereto" (Col. 3 lines 9-11). In regard to claims 2 and 14, Todd, Jr. et al. disclose "the selective inhibition of one microorganism in the presence of another by the application of an amount of hexahydrolupulone which is inhibitory as to the one microorganism but not the other" (Col. 3 lines 16-19). In regard to claim 3, Todd, Jr. et al. disclose 0.2% solution of hexahydrolupulone (Example 6).

In regard to claims 5, 6 and 15 Todd, Jr. et al. disclose hexahydrolupulone (hexahydrobeta acid) (Example 4).

In regard to the isomerized form of hop acids recited in claims 14 and 125, Todd discloses that use of isomerized hop acids was a well known practice in the art (Col. 1 lines 25-30). One of ordinary skill in the rat would have been motivated to use hexahydrolupulon in the isomerized form as a well known hop aid material used in the fermentation process involving the presence of yeast .

In regard to claims 4 and 8, Todd, Jr. et al. disclose hexahydrolupulone produced in the alkaline solution… at a pH above about 12 (Col. 2 lines 63-65). Further in this regard, Todd discloses addition of a sufficient amount of 10% of KOH to the hexahydrolupulone solution to raise pH to 13 (Example 5). Therefore, one of ordinary skill in the art would have been motivated to employ the amount of KOH as recited in order to increase the ph of the alkaline solution to the desired value as disclosed by Todd et al.

In regard t o claim 9 and 20-21, Todd, Jr. et al. disclose that inhibition process was varied out at 20 degrees C (Example 6). In regard to claim 10, Todd, Jr. et al. disclose 0.2% solution of hexahydrolupulone to provide 50 ppm in the culture (Example 6).

In regard to he recitation of the pH of the aqueous alkaline hop acid solution is higher than the pH of the aqueous process medium, it is noted that this recitation is used in the context of the fermentation process medium. Todd et al discloses that "[a]accordingly, it is evident that the hexahydrolupulone solution may be used to

selectively inhibit growth of specific cell lines, for example, the selective inhibition of Lactobacillus in the presence of yeast. Moreover, its use in inhibiting Lactobacillus infections in the brewhouse will become immediately apparent to one skilled in the brewing art. Other useful applications in fermentation processes, as well as pharmaceutical applications, will also be apparent to one skilled in the art" (Col. 8 lines 10-13). In the brewing art, the fermentation media consists of aqueous solution of fermentable sugars. The pH of the alkaline solution of hexahydrolupulone is about 12, as disclosed by Todd et al, which is highly alkaline due to the presence of hydroxides. The fermentation media consisting of fermentable sugars in water would inherently have significantly lower pH than that of alkaline solution of hexahydrolupulone

Todd, Jr. et al. do not disclose that the aqueous alkaline hop acid solution contains from about 2 to about 40 wt. % of hop acid, the aqueous process medium is a process medium in a yeast production process.

Since Todd, Jr. et al disclose that "[t]he resulting pure hexahydrolupulone is useful as a growth inhibitor in such forms as a stable alkaline solution in water", alkaline solution would inherently have high pH value due to the presence of hydroxide ions in the solution. Since Todd, Jr. et al. disclose lower concentration of hexahydrolupulone than recited and the fact that disclosed hexahydrolupulone was highly purified, it would have been obvious to vary concentration of hop acid in a hop acid alkaline solution depending on the level of acid purity.

Todd Jr. et al is silent as to the addition of hop acid solution to yeast in a yeast growing tank. As evidenced by ALCOHOL DISTILLERS HANDBOOK, "[h]ops extract is

occasionally used with water for preparation of yeast mashes because it contains resins and is believed to inhibit the growth of microorganisms" (p. 57). Since Todd, Jr. et al disclose use of hexahydrolupulone to inhibit the growth of Lactobacillus in the brewhouse (alcohol production) and in other fermentation processes (Col. 8 lines 8-12), and since it was well known in the art to use hop acids (resins) extracts for preparation of yeast fermentation mashes in alcohol (ethanol) production, one of the ordinary skill in the art would have been motivated to modify disclosure of Todd, Jr. et al and to use hop acids extract in ethanol (alcohol) production at any stage of the ethanol production where inhibiting of bacteria is required. One of ordinary skill in the art would have been motivated to use hop acids solutions in production of ethanol to inhibit growth of Lactic acid bacteria, since it was well known in the art to use hop acids (resins) extracts for preparation of yeast fermentation mashes in alcohol (ethanol) production for antibacterial purposes. One of ordinary skill in the art would have been motivated to add hop acids solutions to the yeast growing tank, and then to transfer the mixture to the fermentation vessel, since Todd, Jr. et al. disclose "the addition of hexahydrolupulone to a yeast culture to inhibit the growth of Lactobacillus therein" (Col. 3 lines 7-8).

Todd Jr. et al is silent as to the aerobic conditions of yeast growth and anaerobic conditions for fermentation. Righelato et al. discloses that "Fermentation, the anaerobic catabolism of carbohydrates, proceeds by the oxidation of sugars to pyruvic acid, which process yields the cell energy and produces reduced nucleotides and a number of products that are potentially useful to man (table 1). Ethanol is the most widely known of these, as an industrial product, made by the reductive decarboxylation of pyruvate.

From each mole of hexose, 2 mol of ethanol are generated conserving over 90 % of the calorific value of the sugar in the product". Richards et al discloses consumption of oxygen during the yeast growth. Therefore, one of ordinary skill in the art would have been motivated to modify Todd and to employ conventional conditions for alcohol fermentation and yeast growth such as aerobic for yeast growth and anaerobic for fermentation.

Claims 7 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Todd, Jr. et al. (US 5,082,975) in view of ALCOHOL DISTILLERS HANDBOOK, Righelato et al. (Anaerobic Fermentation: Alcohol Production [and Discussion]) and Richards et al. (OXYGEN CONSUMPTION AND CARBON DIOXIDE PRODUCTION DURING THE GROWTH OF YEAST) as applied to claims 2-6, 8-11, 14-15 and 20-21 above and further in view of Simpson (Synergism Between Hop Resins and Phosphoric Acid And Its Relevance To The Acid Washing of Yeast).

Kaneda et al (Beer Absorption on a Lipid Membrane as Related to Sen Evaluation) cited as evidence as discussed below.

Todd, Jr. et al., ALCOHOL DISTILLERS HANDBOOK, Righelato et al., Richards et al. are taken as cited above.

Todd, Jr. et al. do not disclose isomerized hop acid.

Simpson discloses that hop acids present in the brewery yeast slurries have a bacterial action on lactic acid bacteria during the acid washing process (p. 405).

Simpson disclose introduction into microorganisms of aqueous solution of "isomerised hop extract (ISOHOPCO2N, Pauls Hop Products, England) hopped to a level of 60° EBCBU" (p. 406). Simpson also discloses that solution contains 0-85% NaCl (p. 406). Thus Simpson discloses alkaline aqueous solution of isomerized hop acid. Simpson also discloses that alkaline aqueous solution of isomerized hop acid is maintained at 5° C (p. 406). As evidenced by Kaneda et al (Beer Absorption on a Lipid Membrane as Related to Sen Evaluation), the concentration of isomerized acids in ISOHOPCO2N product is 30%, in particular the concentration of isohumulone (isoalpha acid) is 21.6%.

Since Todd Jr. et al disclose aqueous hop acid alkaline solution as a selective inhibitor of cell growth, and Simpson discloses that hop acids have a bacterial action on lactic acid bacteria and adding aqueous isoalpha acid alkaline solution to yeast, it would have been obvious to modify disclosure of Todd et al and substitute synthesized hexahydrolupulone with commercially available aqueous isoalpha hop acid alkaline solution (ISOHOPCO2N) as a cell growth inhibitor in order to simplify the process and avoid multiple steps of hexahydrolupulone synthesis.

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Todd, Jr. et al. (US 5,082,975) in view of ALCOHOL DISTILLERS HANDBOOK, Righelato et al. (Anaerobic Fermentation: Alcohol Production [and Discussion]) and Richards et al. (OXYGEN CONSUMPTION AND CARBON DIOXIDE PRODUCTION DURING THE GROWTH OF YEAST) and Simpson (Synergism Between Hop Resins and Phosphoric Acid And Its Relevance To The Acid

Washing of Yeast) and further in view of Todd, Jr. (US 4,002,863) hereinafter '863 Patent.

Todd, Jr. et al., ALCOHOL DISTILLERS HANDBOOK, Righelato et al., Richards et al. and Simpson are taken as cited above.

In regard to claim 12, Simpson discloses isoalpha acid extract. In regard to claim 13, Simpson discloses that alkaline aqueous solution of isomerized hop acid is maintained at 5° C (p. 406).

Todd, Jr. et al. and Simpson do not disclose steps of aqueous alkaline hop acid solution preparation as recited.

'863 patent discloses a process for isomerizing alpha acids to iso-alpha acids. '863 patent discloses "a process for transforming an alpha acid into an iso-alpha acid, involving contact of the alpha acid with an aqueous solution of a metal ion, comprising the steps of contacting an aqueous solution of the metal ion with a water-immiscible organic solvent solution of the alpha acid under conditions where the alpha acid is dissolved or remains dissolved in said organic solvent and effecting the desired isomerization in the water-immiscible organic solvent with or without prior separation of said solvent containing said alpha acid from the aqueous phase, having numerous advantages over the prior art as herein elsewhere set forth" (Col. 4 lines 10-22). '863 patent discloses "the pH of any water phase is above 8.0 and preferably 13 or below and the temperature is below 50°C" (Col. 4 lines 31-33). '863 patent discloses "metal ions are introduced into the said hop extract while the solvent is present, the mixture held until isomerization occurs, and the solvent removed; metal ions are removed by

washing the said hop extract contained in the solvent with dilute acid prior to removal of the solvent; the said mixture is held at a temperature below 50°C until isomerization occurs" (Col. 4 lines 40-47). '863 patent teaches the following advantages of the disclosed method: it eliminates the need to remove the solvent from the extract prior to isomerization; it permits continuous processing of the hops, from extraction to isomerization to solvent removal, without intermediate heating and cooling of the solvent; it permits the isomerization to be conducted at an increased rate, under conditions which eliminate the hazard of oxidation, hydrolysis, and further isomerization of the iso-alpha acids; it eliminates the necessity for carefully controlled amounts of reagents which, combined with mild conditions, makes the reaction foolproof; it greatly reduces the size and volume of equipment required to process a given quantity of hops, because the concentration of extract in the water-immiscible solvent is not critical, and may in the process of this invention be very high (Col. 10 lines 50-68).

Since Simpson discloses that hop acids have a bacterial action on lactic acid bacteria and adding aqueous isoalpha acid alkaline solution to yeast, and '863 Patent teaches a process for isomerizing alpha acids to iso-alpha acids, it would have been obvious to modify combined teachings of Todd, Jr. et al. and Simpson and employ a method of preparation of aqueous alkaline hop acid solution in order to obtain aqueous isoalpha acid alkaline solution with all the

(10) Response to Argument

Appellants' arguments have been fully considered but they are not persuasive.

In response to the aerobic/anaerobic conditions arguments presented in the Appeal Brief (page 6 § 5; page 7 §§ 1 and 3; page 8 §§ 2 and 3; page 9 § 2), it is noted that Todd is not relied upon as a teaching of aerobic/anaerobic conditions, and there is no requirement in Todd for these conditions. The aerobic/anaerobic conditions have nothing to do with the addition of hexahydrolupulone to a yeast culture to inhibit the growth of Lactobacillus. Further in response to the argument, regarding the growth of yeast under aerobic conditions, it is noted that it was well known in the art that oxygen is one of the required components of the yeast growing media, and that aerobic growth of yeast is a standard practice in the art. As stated in the Non-Final Office action mailed 03/30/2010, Righelato et al. discloses that "Fermentation, the anaerobic catabolism of carbohydrates, proceeds by the oxidation of sugars to pyruvic acid, which process yields the cell energy and produces reduced nucleotides and a number of products that are potentially useful to man (table 1). Ethanol is the most widely known of these, as an industrial product, made by the reductive decarboxylation of pyruvate. From each mole of hexose, 2 mol of ethanol are generated conserving over 90 % of the calorific value of the sugar in the product". Richards et al discloses consumption of oxygen during the yeast growth. Therefore, one of ordinary skill in the art would have been motivated to modify Todd and to employ conventional conditions for alcohol fermentation and yeast growth such as aerobic for yeast growth and anaerobic for fermentation.

In response to applicant's arguments against the references individually (page 7 § 2; page 9 § 2 and 4; page 10 § 1 and 2), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of

references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Simpson discloses that hop acids present in the brewery yeast slurries have a bacterial action on lactic acid bacteria during the acid washing process (p. 405). Simpson is relied upon as a teaching of an introduction into microorganisms of aqueous solution of "isomerised hop extract (ISOHOPCO2N, Pauls Hop Products, England) hopped to a level of 60° EBCBU" (p. 406).

In response to Appellants' arguments on regarding the motivation for Yeast growing (page 8 § 3 of the Reply), it is noted that the claimed invention is directed towards "an improved process for inhibiting bacterial growth in an aqueous process medium comprising adding a hop acid". Applicant's invention is not directed to the method of growing yeast. Todd is relied upon as a teaching of inhibiting bacterial growth in an aqueous process medium comprising adding a hop acid, "the addition of hexahydrolupulone to a yeast culture to inhibit the growth of Lactobacillus therein" (Col. 3 lines 7-8); "the inhibition of a Lactobacillus microorganism in the presence of yeast without inhibiting growth of the yeast by the application of a Lactobacillus-inhibiting amount of hexahydrolupulone thereto" (Col. 3 lines 9-11). Since Todd, Jr. et al disclose use of hexahydrolupulone to inhibit the growth of Lactobacillus in the brewhouse (alcohol production) and in other fermentation processes (Col. 8 lines 8-12), and since it was well known in the art to use hop acids (resins) extracts for preparation of yeast fermentation mashes in alcohol (ethanol) production, one of the ordinary skill in the art would have been motivated to modify disclosure of Todd, Jr. et al and to use hop acids

extract in ethanol (alcohol) production at any stage of the ethanol production where inhibiting of bacteria is required. One of ordinary skill in the art would have been motivated to use hop acids solutions in production of ethanol to inhibit growth of Lactic acid bacteria, since it was well known in the art to use hop acids (resins) extracts for preparation of yeast fermentation mashes in alcohol (ethanol) production for antibacterial purposes. One of ordinary skill in the art would have been motivated to add hop acids solutions to the yeast growing tank, and then to transfer the mixture to the fermentation vessel, since Todd, Jr. et al. disclose "the addition of hexahydrolupulone to a yeast culture to inhibit the growth of Lactobacillus therein" (Col. 3 lines 7-8).

In response to Appellants; arguments that alkaline solution of hop acids are Noyt used in Todd to inhibit the bacterial growth (page 8 bottom paragraph), it is noted that Todd et al discloses that "[a]lthough the hexahydrolupulone may be used as a neutral solution in alcohol or the like, its preferred form is as a stable alkaline solution as described in Example 5" (Col. 8 lines 14-16).

In response to Applicants arguments regarding the ALCOHOL DISTILLERS HANDBOOK reference (page 9 bottom paragraphs, pages 1-12), it is noted that this reference is relied upon as a teaching of the fact that "[h]ops extract is occasionally used with water for preparation of yeast mashes because it contains resins and is believed to inhibit the growth of microorganisms" (p. 57). It is also noted that the term "yeast mash" suggests presence of yeast. Even if the preliminary yeast mash does not contain yeast at the moment of addition of hop acids/extracts, it is intended for the so called "yeasting", i.e. addition of yeast. Thus, such "yeast mash" containing hop

extracts/acids is contacted with yeast. Further in response to Appellants' arguments regarding the ALCOHOL DISTILLERS HANDBOOK reference, it is noted that the reference is not relied upon as a teaching of aqueous alkaline solution of hop acids. Todd is relied upon as a teaching of aqueous alkaline solution of hop acids.

In response to applicant's arguments against the references individually (page 13 of the Appeal Brief), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Righelato et al and Richards et al are relied upon as a teaching of conventional conditions for alcohol fermentation and yeast growth such as aerobic for yeast growth and anaerobic for fermentation.

In response to Applicant's arguments regarding declaration under 37 CFR 1.132 (page 14 and 15 of the Appeal Brief), it is noted that the declaration states that one of ordinary skill in this field would not have expected the use of hop acids in the manner claimed in the above-identified application to have any appreciable effects on fuel ethanol production (page 2 of declaration). This argument is not deemed persuasive for the reasons of record stated in the previous Office actions. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., production of fuel ethanol) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). FurtherIn regard to this

argument, it is noted that, Todd, Jr. et al. (US Patent 5,082,975) disclose use of hydrogenated purified beta acid (hexahydrolupulone) as a selective inhibitor of cell growth (Col. 2 lines 33-41, Col. 3 lines 7-20). Todd, Jr. et al. disclose "the addition of hexahydrolupulone to a yeast culture to inhibit the growth of Lactobacillus therein" (Col. 3 lines 7-8). Todd, Jr. et al. disclose "the inhibition of a Lactobacillus microorganism in the presence of yeast without inhibiting growth of the yeast by the application of a Lactobacillus-inhibiting amount of hexahydrolupulone thereto" (Col. 3 lines 9-11). Todd, Jr. et al. disclose that "[m]oreover, its use in inhibiting Lactobacillus infections in the brewhouse will become immediately apparent to one skilled in the brewing art. Other useful applications in fermentation processes, as well as pharmaceutical applications, will also be apparent to one skilled in the art" (Col. 8 lines 3-13). ALCOHOL DISTILLERS HANDBOOK is a further evidence of the fact that "[h]ops extract is occasionally used with water for preparation of yeast mashes because it contains resins and is believed to inhibit the growth of microorganisms" (p. 57). Therefore, taking in consideration the combination of references and art as a whole, Applicants arguments are not deemed persuasive.

Appellants' arguments regarding the rejection of claims7, 16-18, 12 and 13 have been fully considered but they are not persuasive for the reasons as stated above.

In response to Applicant's argument regarding Double patenting rejections (page 16 of the Appeal Brief), it is noted that a timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting

application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. Since Applicant submitted none of the above, double patenting rejections are maintained for the reasons of record.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,
/Vera Stulii/
Examiner, Art Unit 1781

Conferees:
/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1781

/Rena L. Dye/
Supervisory Patent Examiner, Art Unit 1782